UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,209	06/27/2008	Finbar Naven	011765-0355970	5529

909 7590 10/26/2011

Pillsbury Winthrop Shaw Pittman, LLP (NV)
PO Box 10500
McLean, VA 22102

EXAMINER	
ZAIDI, IQBAL	

ART UNIT	PAPER NUMBER
2464	

NOTIFICATION DATE	DELIVERY MODE
10/26/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docket_ip@pillsburylaw.com
margaret.drosos@pillsburylaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/590,209	NAVEN ET AL.	
	Examiner	Art Unit	
	IQBAL ZAIDI	2464	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/19/2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-14,26-28,35,39,40 and 48* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☒ Claim(s) *15-18, 29-31, 33, and 42-47* is/are allowed.

7)☒ Claim(s) *1-12,26-28,35,39,40 and 48* is/are rejected.

8)☒ Claim(s) *13* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to applicant's amendment filed on Aug, 19, 2011 for Application No. 10/590209.

2. Claims 1-14, 26-28, 35, 39-40 and 48, are pending in this application.

Response to Argument

3. Applicant's arguments with respect to claims 1-24 and 42-47, have been considered but are moot in view of the new ground(s) of rejection. However the new ground(s) of rejection is made in view of Van et al. (US 5901140, May 4, 1999) and Paquette et al. (US 6657963, Dec. 2, 2003) and Lui at al. (US 20030193959, Oct. 16, 2003).

Allowable Subject Matter

4. **Claim 13** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-8, 12, and 14** are rejected under 35 U.S.C 102(e) as being anticipated by Paquette et al. (US 6657963, Dec. 2, 2003) (Hereinafter Paquette et al).

Regarding **Claim 1**, Paquette discloses a method of congestion management within a switch or network of connected switches wherein the each of the switches has a plurality of ingress ports and a plurality of egress ports *(column 2, line 49-60, congestion information can be relayed between switches using different protocols within the network. This allows upstream switches to detect downstream congestion and transferred from their ingress ports (plurality of ingress ports) to their egress ports (plurality of ingress ports) that are providing data to the area that is congested)*, the method comprising when congestion is detected at a first ingress or egress port *(column 4, line 25-30, if congestion is detected at an egress port)*,

sending a message to an upstream port connected to the first ingress or egress port indicating that Congestion has occurred at a particular port *(column 3, line 60-65, See Fig 1, shows when a forward resource management (FRM) cell is received by the egress port 127 from the ingress port 125 within the network, a congestion indication bit that is set will be included in the backwards resource management (BRM) cell 60 produced in the egress port 127 in response to the FRM cell. This notifies the ingress port 125(first ingress port upstream port see column 3, If congestion occurs at the*

congested port 132 of the frame relay switch 130, the frame relay switch will generate a BECN indication that is sent upstream to the internetworking switch 126) of the congestion detected by the egress frame relay port132 (particular port))

and requesting storage at the upstream port of data packets destined for the first ingress or egress port *(column 8, line 1-15, Knowledge of the downstream congestion enables upstream switches to buffer (requesting storage at upstream port) some of the data traffic such that the congestion can be mitigated and may also prevent loss of data due to discards in congested elements see column 7,Fig 2, line 15-20, shows ATM line card(upstream port) Upon receiving the set frame relay congestion indications, the virtual source virtual destination 18 buffers(see Fig 2 upstream port 230 having VS/VD buffer which is storing the data) incoming frame relay frames and correspondingly reduces its egress data transfer rate to the AIM switch 54)*;

and in dependence on the amount of data packets destined for the congested port stored at said upstream port *(column 4, line 30-35, The upstream switches may adjust their transmission rates to help the original congested port or switch to recover, and can also reduce any potential data discarding(amount of data packets)),*

sending from the upstream port to a further upstream port a message informing said further upstream port of the congestion at the first ingress or egress congested port, said further upstream port storing at said further upstream port data packets destined for the first ingress or egress congested port*(*Paquette*, column 3, see Fig 1, line 44-47, shows, the internetworking switch 126, upon receiving a frame with a set BEeN indication from the frame relay switch 130, notes that there is congestion*

downstream. As such, it will attempt to reduce traffic on the connection to the congested switch 130, column 4, line 20-30, The resulting reduction in egress traffic from the internetworking switch 126 will likely result in the buffers within the switch 126 becoming increasingly full. When this results in a congested state within the switch 126, it will use the congestion indication means available in the ATM protocol to inform the ATM switch 124 that it is congested. Thus, the buffers in successive upstream switches (both ATM and frame relay) will be utilized to offload the congestion, the congested state and congestion notification will trickle upstream(further upstream), as each switch is able to notify neighboring switches of the congestion, regardless of any protocol differences).

Regarding **Claim 2**, Paquette discloses a method according to claim 1, comprising at said upstream port, allocating memory for use as a set-aside- queue for data packets destined for the congested port *(column 6, The processing module 70 and memory 72 to memory 32. The internetworking module 66 is coupled to a congestion register 68 that used to store an indication of congestion).*

Regarding **Claim 3**, Paquette discloses at said upstream port creating an entry in a memory to indicate that congestion has occurred at the particular port *(column 7, The path towards the CLLM indication is an explicit notification that a particular connection is experiencing congestion)*; and, checking packets subsequently received at the upstream port against the entry in the memory and, if a packet is directed to the congested port, storing said packet in the corresponding set aside queue *(column 8,*

When the congestion cell is detected, an indication of the receipt of the congestion indication cell be stored. This indication can be checked each time a frame is generated to determine if it is appropriate to include a frame relay format congestion indication in the frame).

Regarding **Claim 4**, Paquette disclose within the upstream port, allocating one or more set aside queues in dependence on messages received from the first port *(column 8, line 1-15, Knowledge of the downstream congestion enables upstream switches to buffer (requesting storage at upstream port) some of the data traffic such that the congestion can be mitigated and may also prevent loss of data due to discards in congested elements see column 7,Fig 2, line 15-20, shows ATM line card(upstream port) Upon receiving the set frame relay congestion indications, the virtual source virtual destination 18 buffers(see Fig 2 upstream port 230 having VS/VD buffesr(queues) which is storing the data) incoming frame relay frames and correspondingly reduces its egress data transfer rate to the AIM switch 54).*

Regarding **Claim 5**, Paquette discloses within the upstream port controlling data flow into and out of the set aside queue in dependence on the congestion *(column 7, the upstream ingress data rate of the ATM switch 54 is reduced, thereby helping reduce (controlling) the data congestion at egress port of ATM switch 54) .*

Regarding **Claim 6**, Paquette disclose de- allocating the one of more set aside queues in dependence on one or more criteria *(column 7, the upstream ingress data rate of the ATM switch 54 is reduced, thereby helping reduce (controlling) the data congestion at egress port of ATM switch 54)*.

Regarding **Claim 7**, Paquette discloses in which the one or more criteria include the amount of data in the set aside queue *(column 4, line 30-35, The upstream switches may adjust their transmission rates to help the original congested port or switch to recover, and can also reduce any potential data discarding(amount of data packets))*.

Regarding **Claim 8**, Paquette discloses the message requesting establishment of a set aside queue is discarded by the upstream port if the congestion identified in the request is further downstream than the original congestion *(column 2, line 49-60, congestion information can be relayed between switches using different protocols within the network. This allows upstream switches to detect downstream congestion and transferred from their ingress ports (plurality of ingress ports) to their egress ports (plurality of ingress ports) that are providing data to the area that is congested)*.

Regarding **Claim 12**, Paquette discloses when a subsequent packet is received by the upstream port, if it is destined for the congestion, storing it in a set aside queue, and if it is not destined for the congestion, storing it in a cold queue at the upstream port*(column 8, line 1-15, Knowledge of the downstream congestion enables upstream*

switches to buffer (requesting storage at upstream port) some of the data traffic such that the congestion can be mitigated and may also prevent loss of data due to discards in congested elements see column 7,Fig 2, line 15-20, shows ATM line card(upstream port) Upon receiving the set frame relay congestion indications, the virtual source virtual destination 18 buffers(see Fig 2 upstream port 230 having VS/VD buffesr(queues) which is storing the data) incoming frame relay frames and correspondingly reduces its egress data transfer rate to the AIM switch 54).

Regarding **Claim 14**, Paquette discloses the memory is provided as an associative memory *(see Fig 2 upstream port 230 having VS/VD buffesr (queues) which is storing the data) incoming frame relay frames and correspondingly reduces its egress data transfer rate to the AIM switch 54).*

19. - 25. (Cancelled)

Regarding **Claim 26**, Paquette discloses a switch for use in a network of switches, the switch comprising two or more ingress ports *(column 2, line 49-60, congestion information can be relayed between switches using different protocols within the network. This allows upstream switches to detect downstream congestion and transferred from their ingress ports (plurality of ingress ports))*;

two or more egress ports *(column 2, line 49-60, congestion information can be relayed between switches using different protocols within the network. This allows upstream switches to detect downstream congestion and transferred from their ingress*

ports(plurality of ingress ports) to their egress ports (plurality of egress ports) that are providing data to the area that is congested);

a switch fabric for selectively coupling data packets received at one or more of the ingress ports to one or more of the egress ports *(column 2, line 49-60, congestion information can be relayed between switches using different protocols within the network. This allows upstream switches to detect downstream congestion and transferred from their ingress ports(plurality of ingress ports) to their egress ports (plurality of egress ports) that are providing data to the area that is congested)*;

storage for, in response to a request for storage of data packets destined for a downstream congested port, storing selected data packets *(column 8, line 1-15, Knowledge of the downstream congestion enables upstream switches to buffer (requesting storage at upstream port) some of the data traffic such that the congestion can be mitigated and may also prevent loss of data due to discards in congested elements see column 7,Fig 2, line 15-20, shows ATM line card (port) Upon receiving the set frame relay congestion indications, the virtual source virtual destination 18 buffers(see Fig 2 port 230 having VS/VD buffer which is storing the data) incoming frame relay frames and correspondingly reduces its egress data transfer rate to the AIM switch 54)*, selection means, for selectively routing a received data packet to the storage in dependence on the detected desired destination of the packet*(column 5, line 5-15, An entry in the Label Table 16ucontains an incoming label and a pointer 24, The incoming label 23 is the search key to find the corresponding pointer 24. An entry 25 in the I7 contains the routing information through the considered switch and the outgoing*

label. An entry 26 in the Queue Bookkeeping table 18 contains a cell count and the incoming label. The count monitors the number of cells associated with the incoming label that are enqueued for switching to one of the output ports);

and request generation means arranged to send a request to a further upstream port to request storage of data packets destined for the downstream congested port at said further upstream port when a threshold amount of data packets destined for tile downstream congested port are stored in the storage *(Paquette, column 3, see Fig 1, line 44-47, shows, the internetworking switch 126, upon receiving a frame with a set BEeN indication from the frame relay switch 130, notes that there is congestion downstream. As such, it will attempt to reduce traffic on the connection to the congested switch 130, column 4, line 20-30, The resulting reduction in egress traffic from the internetworking switch 126 will likely result in the buffers within the switch 126 becoming increasingly full. When this results in a congested state within the switch 126, it will use the congestion indication means available in the ATM protocol to inform the ATM switch 124 that it is congested. Thus, the buffers in successive upstream switches (both ATM and frame relay) will be utilized to offload the congestion, the congested state and congestion notification will trickle upstream(further upstream), as each switch is able to notify neighboring switches of the congestion, regardless of any protocol differences)*.

Regarding **Claim 27**, Paquette discloses the selection means comprises a content addressable memory *(see Fig 2 upstream port 230 having VS/VD buffesr*

(queues) which is storing the data) incoming frame relay frames and correspondingly reduces its egress data transfer rate to the AIM switch 54).

Regarding **Claim 28**, Paquette discloses a set aside queue is only formed in response to the request if one or more of a number of criteria are satisfied*(column 6, line 40-50, See Fig 6, shows the queuing linked list organization, It consists of a Data Memory 40 and a Buffer Control Record Memory 41(set-aside-queue), the Data Memory 40 is structured such that it contains the cells, The Buffer Control Record Memory 41 incorporates the mechanism of a queuing linked list controlled if satisfied)*.

32. (Cancelled). 34. (Cancelled).

Regarding **Claim 35**, Paquette discloses a network of interconnected switches connected in a topology, the network comprising a plurality of switches wherein at least two of the switches are switches according to claim 26*(column 1, Communication networks are known to include a plurality of switches that transport user data between calling parties and called parties)*.

36. - 38.

(Cancelled)

Regarding **Claim 39**, Paquette discloses an endstation for use in a network of interconnected switches *(column 1, Communication networks are known to include a plurality of switches that transport user data between calling parties and called parties)*,

the end station comprising an ingress port for receiving data packets from a network to which in use the end station is connected*(see Fig 1, shows ingress port 125 receiving data packets from a network to which in use the end station 132 connected)*;

an egress port for providing data packets to a network to which in use the end station is connected*(see Fig 1, shows ingress port 127 providing data packets to a network to which in use the end station 132 connected)*;

in which the egress port includes means operable in use to receive a message from a downstream port*(column 3, line 48-52, the internetworking switch 126 by informing the ATM ingress port 125 of the switch 126 that 50 there is congestion downstream from the egress port 127 coupled to switch 130)*;

the message containing data relating to a congested port further downstream than the downstream port and a request to provide storage for data packets destined for the congested port further downstream *(*Paquette*, column 3, see Fig 1, line 44-47, shows, the internetworking switch 126, upon receiving a frame with a set BEeN indication from the frame relay switch 130, notes that there is congestion downstream. As such, it will attempt to reduce traffic on the connection to the congested switch 130, column 4, line 20-30, The resulting reduction in egress traffic from the internetworking switch 126 will likely result in the buffers within the switch 126 becoming increasingly full. When this results in a congested state within the switch 126, it will use the congestion indication means available in the ATM protocol to inform the ATM switch 124 that it is congested. Thus, the buffers in successive upstream switches (both ATM and frame relay) will be utilized to offload the congestion, the congested state and*

congestion notification will trickle upstream(further upstream), as each switch is able to notify neighboring switches of the congestion, regardless of any protocol differences).

Regarding **Claim 40**, Paquette discloses a control device operable in use to, in response to the message received from the network, allocate a set-aside queue for storing of data packets destined for the congested port queue *(column 8, When the congestion cell is detected, an indication of the receipt of the congestion indication cell be stored. This indication can be checked each time a frame is generated to determine if it is appropriate to include a frame relay format congestion indication in the frame).*

41. (Cancelled)

Regarding **Claim 48**, Paquette discloses at said further upstream port, allocating memory for use as a set-aside-queue for data packets destined for the first ingress or egress congested port *(column 2, line 49-60, congestion information can be relayed between switches using different protocols within the network. This allows upstream switches (see column 6, the internetworking switch includes processing module and memory) to detect downstream congestion and transferred from their ingress ports (plurality of ingress ports) to their egress ports (plurality of ingress ports) that are providing data to the area that is congested).*

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. **Claims 9-11** are rejected under 35 U.S.C 103(a) as being unpatentable over Paquette et al. (US 6657963, Dec. 2, 2003) in view Lui at al. (US 20030193959, Oct. 16, 2003)

Regarding **Claim 9**, Paquette disclose all aspects of the claimed invention, except *the message indicating that congestion has Occurred includes a token to be kept by the upstream port to identify the upstream port as a leaf port within a congestion tree.*

Lui is the same field of invention teaches the message indicating that congestion has Occurred includes a token to be kept by the upstream port to identify the upstream port as a leaf port within a congestion tree *(page 28, line 15-20, bridge receives a frame that is being forwarded upstream on a tree path, selecting either an enhanced path, or a tree path responsive to a priority number(token) carried by the received frame and a number of hops the frame has made over the tree path).*

Paquette and Lui are analogous art because they are from the same field of endeavor of access to a service device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Paquette to include the teaching of Lui because it is providing alternative forwarding path that is shorter than the tree path can be found.

Regarding **Claim 10**, Paquette disclose all aspects of the claimed invention, except *storing data about the number of leaves in the congestion tree in each switch in the tree.*

Lui is the same field of invention teaches storing data about the number of leaves in the congestion tree in each switch in the tree *(page 28, line 15-20, bridge receives a frame that is being forwarded upstream on a tree path, selecting either an enhanced path, or a tree path responsive to a priority number (token) carried by the received frame and a number of hops (number of leaves) the frame has made over the tree path).*

Regarding **Claim 11**, Paquette disclose all aspects of the claimed invention, except *in which when a set aside queue is de-allocated, the leaf token is returned by the upstream switch to the adjacent downstream switch, the method comprising maintaining a record relating to leaf switches that have returned a leaf token.*

Lui is the same field of invention teaches in which when a set aside queue is de-allocated, the leaf token is returned by the upstream switch to the adjacent downstream switch, the method comprising maintaining a record relating to leaf switches that have returned a leaf token *(page 23, par (0253), line 15-20, The integer returned by the function is then used for deciding which port to forward a frame. We refer to this function as the forwarding decision function and the returned value of the function as the forwarding decision value).*

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are:

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IQBAL ZAIDI whose telephone number is (571)-270-3943. The examiner can normally be reached on 7:30a.m to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NGO RICKY can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Pao Sinkantarakorn/
Primary Examiner, Art Unit 2464

/IQBAL ZAIDI/

Examiner, Art Unit 2464